1884

October 21, 1958

Dear Scot,

Enclosed is the literature I promised to send you concerning the epoxy resin and Devcon products.

The Epoxical is the material I used in pouring molds. I would suggest that if you do not intend to use risers with this material, your maximum pour depth should not exceed four (4) inches for large volumes.

The Devcon A & B material is very good and I believe it has a lower shrinkage figure than Epoxical. Devcon A & B must be machine worked after casting because of the high iron content. In ordering this material be sure to specify that the hardner is also requested.

If I can furnish you any more information have Mr. Jacobson get in touch with me.

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United States Gypsum

UNITED STATES GYPSUM

Industrial Sales Division
300 West Adams Street Chicago 6, Illinois

IGL Bulletin No. 401

EPOXICAL*
METALLIC CASTING RESIN

EPOXICAL Metallic Casting Resin is a liquid plastic designed for casting or surface coat applications. It was developed to provide industry with a dimensionally stable tooling and pattern making resin, which will cure or harden at room temperature. It can be poured into molds made of HYDROCAL* or ULTRACAL* gypsum cements, wood, metal, or plastic. The very low shrinkage of this casting medium permits precision fabrication of match plates, core boxes, dryer patterns, and cope and drag equipment for the foundry. It has also been used very satisfactorily to face drop hammer dies, to cast milling machine fixtures, and as a potting compound.

*Hydrocal and Ultracal are trade marks Reg. U. S. Pat. Off. for super-strength gypsum cements manufactured by U. S. Gypsum Co.
*EPOXICAL is a trade mark for epoxy resins manufactured by United States Gypsum Company.

PREPARING MOLD SURFACE

Parting compounds, sometimes called "separators" or "release agents", are necessary to prevent adhesion of the cured resin to the mold or model, and to facilitate removal of the cast object from the mold. When using porous models or molds it is generally necessary to seal their surfaces before separator is applied.

Tygon paint, polyvinyl alcohol, or a quick drying lacquer applied by brush or spray gun is an excellent sealant for wood and gypsum cements. Gypsum cement molds should be dried over night at 120°F. to remove free moisture before sealant is applied. After the sealant has dried a generous coating of EPOXICAL MOLD SEALER-SEPARATOR is applied. Metal and plastic surfaces are prepared by coating the model or mold with EPOXICAL MOLD SEALER-SEPARATOR. No other preparation is necessary. This has worked very satisfactorily and has saved many man hours formerly required for mold preparation.

MIXING CASTING RESIN

EPOXICAL METALLIC CASTING RESIN is prepared by mixing 10 parts of resin with one part of hardener by weight. One pound of mixed resin is equal to approximately 18.8 cu. in. and can be poured to a pattern thickness of ½". Patterns or tooling applications of any greater thickness should be poured in stages or cored out to a uniform ⅜" to ½" thickness. Cores can be made of wood, metal, plaster, or precast plastic.

CAUTION: Avoid breathing vapor. Avoid contact with skin, eyes or clothing. When handling epoxy resins and hardeners, adequate protective measures should be taken. Protective hand cream and rubber gloves will suffice in most cases, but individuals' reactions differ as some employees' skin is more sensitive than others.

If contact with resin or hardener is encountered, clean skin *immediately* with denatured alcohol. Wash areas thoroughly with soap and water and rinse repeatedly for at least 15 minutes. If eyes are involved or irritation persists, see a doctor.

Provide adequate ventilation. Exhaust fans are recommended to help remove fumes that may occur during use.

POURING THE RESIN

Pouring sprues or gates of cardboard tubing ¾" to 1" in diameter and 4" to 8" in height are recommended. Vent holes are also necessary to prevent entrapped air in the mold corners and in intricate shapes. Vent holes should be carved or drilled in the top half or cope side of the mold. Soda straws are usually placed in the vent holes to act as risers to feed the casting as slight volume shrink takes place during setting. When the mold cavity is filled, the 4" to 8" high pouring sprues should also be filled to create hydrostatic pressure which will insure reproduction of fine detail.

After pouring, the resin should cure in the mold 12 to 16 hours. Removal of the cast piece can then be accomplished by:

(1) Wedging evenly between mold parting lines with a sharp tool or chisel; or

(2) By blowing with compressed air.

EPOXICAL METALLIC CASTING RESIN patterns and models can be patched, repaired or reworked to comply with engineering or design changes. Repairs and changes are made by mixing the required quantity of resin and hardener at the 8 to 1 ratio. Then fill voids, make patches, changes, etc. To hasten cure of resin, place a heat lamp 10" to 12" from the area being repaired. The heat will accelerate the polymerization of the patch or repaired area. Caution must be exercised to prevent over-heating. Too much heat results in excessive exothermic reaction which often causes porosity and brittleness of the new mix.

PHYSICAL PROPERTIES AND CHARACTERISTICS

Pot life or working time (min.)	60
Weight per gallon (mixed) (lbs.)	10.4 - 10.6
Specific Gravity	1.43
Cu. in./lb.	18.8
Flexural Strength, P.S.I.	7000 - 7300
Barcol Hardness	85
Compressive Strength (Ultimate) P.S.I.	16,000
Color (Metallic)	Aluminum
Machinability	Very Good
Shrinkage in. per. in.	.0003
Storage life at 75°F.	1 year

MATERIAL IS AVAILABLE IN THE FOLLOWING UNITS

Unit No. 5—EPOXICAL METALLIC CASTING RESIN.....ea. ctn.....$15.00
(6 pt. cans Resin)
(6 cans Hardener)
(1 can Epoxical Mold Sealer-Separator)

Unit No. 6—EPOXICAL METALLIC CASTING RESIN.....ea. ctn.....$26.00
(6 qt. cans Resin)
(6 cans Hardener)

Unit No. 7—EPOXICAL METALLIC CASTING RESIN..... @ $ 1.75 /lb.
(1 gallon (10 lbs.)
(1 can of Hardener) } 11 lbs. Total

Unit No. 15—EPOXICAL METALLIC CASTING RESIN.....5 gal.....lb.....$ 1.65 /lb.
(5 gal. Resin plus Hardener) (66 lbs.)
(Resin 60 lbs. — Hardener 6 lbs.)

OTHER EPOXICAL LAMINATING AND CASTING RESINS ARE AVAILABLE UPON REQUEST

All transportation or delivery charges extra. Shipments will ordinarily be made by railway express, charges collect. Pickups permitted.

Terms: 30 days net — prices are subject to change without notice.

Shipping Point—U. S. Gypsum Company
Chicago, Illinois

Rev. 10-15-56